REMARKS

In response to the Office Action dated December 3, 2008, Applicant requests consideration of the foregoing amendments and the following remarks. Claims 1, 5, 7, 9, 10, 12, 13, and 26-28 are amended. Claims 2, 3, 4, 8, 11, 14, 19-25, and 29-33 are cancelled, and claim 22 was previously cancelled. Claims 34-39 are new. Accordingly, claims 1, 5-7, 9, 10, 12, 13, 15-18, 26-28, and 34-39 are currently pending in the application. No new matter has been added by virtue of the amendments.

I. Drawing Objections

The Drawings are objected to for various following reasons, each of which has been addressed through an amendment to the drawing or an explanation, provided below. Applicant appreciates the Examiner's time in making a careful examination of the Drawings. The amendments to the Drawings include amendments to Figures 4, 7, 10, 13, 18, and 19 as described below, and these amendments are reflected in the attached "Replacement Drawing Sheets". More specifically, the objections are as follows:

- In Figure 4, "PROCESSING ITERATION N+1" in state 44 should be "PROCESSING ITERATION N+2." Applicant has amended FIG. 4 to make this correction, as shown in the attached Replacement Sheet with FIG. 4.

- In Figures 7, 10, and 13, "SAMPLE BUFFER 22" should be "SAMPLE BUFFERS 22." Applicant has amended Figures 7, 10, and 13 to make these corrections, as shown in the attached Replacement Sheets with Figures 7, 10, and 13.

- In Figure 13, "TRANSFORM 77" should be "TRANSFORMER 77". Applicant has amended FIG. 13 to make this correction, as shown in the attached Replacement Sheet with FIG. 13.

- In Figure 18, "Recieved" is misspelled. Applicant has amended FIG. 18 to correct the spelling to "Received", as shown in the attached Replacement Sheet with FIG. 18.

- The drawings are objected to under 37 CFR 1.83(a) as failing to show every feature of the claimed invention, and more specifically as failing to show the two buffers ("a buffer" and "an output memory buffer") in claim 11. Applicant has cancelled claim 11, and therefore this objection is now moot.

- The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign mentioned in the description: "91" on page 22, paragraph [0087] is not shown in Figures 18 or 19. Applicant has amended Figures 18 and 19 to add reference number 91, as shown in the attached Replacement Sheets with FIG. 18 and FIG. 19.

- The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character not mentioned in the description: "DYNAMIC PROCESSING ELEMENT 60" in Figures 7 and 13. Applicant has amended Figures 7 and 13 to eliminate reference number 60, as shown in the attached Replacement Sheets with FIG. 7 and FIG. 13.

II.   Specification Objections

The disclosure is objected to because of the following informality: on page 17, lines 26-27, "sample buffer 22" should be "sample buffers 22" in order to be consistent with the designation for reference number 22 in Figure 2. Applicant has amended the specification at paragraph [0070] in order to make this correction. In addition, Applicant has made additional amendments to the specification to correct non-substantial errors noted during review. No new matter has been added as a result of the amendments, and Applicant believes that the objection has been overcome. Accordingly, Applicant respectfully requests that the objection be withdrawn.

III. Claim Objection

Claim 30 is objected to. Claim 30 has been cancelled, and therefore this objection is now moot.

IV. Claim Rejections - 35 U.S.C. § 112

For claims 3-5, 12-14, 19-28, and 31, the Office Action sets forth a variety of claim rejections under 35 U.S.C. §112, first and second paragraphs. Claims 3, 4, 14, 19-24, and 31 have been cancelled, and therefore this rejection is now moot with respect to those claims. Applicant has amended the remaining rejected claims (i.e., claims 5, 12, 13, and 25-28) in a manner that Applicant believes to overcome the rejections of these claims, and accordingly requests that the rejections be reconsidered and withdrawn in light of the amendments. More particularly:

- Claim 5 was rejected as having insufficient antecedent basis for the limitation "the non-sequential access". Applicant has amended claim 5 in a manner that Applicant believes to establish proper antecedent basis, and believes that this rejection has been overcome.

- Claim 12 was rejected as failing to comply with the written description requirement in that, the specification, as originally filed, allegedly does not describe "performing searches . . . by correlating . . . against a timing hypothesis." Applicant has amended claim 12 to eliminate the feature of the "timing hypothesis," and believes that this rejection has been overcome.

- Claim 13 was rejected as having insufficient antecedent basis for the limitations of "the demodulation element" and "the searching element," and also for allegedly including unclear claim language. Applicant has amended claim 13 in a manner that Applicant believes to overcome this rejection. Support for the amendments to claim 13 may be found in the originally-filed application at Figure 16, and paragraph [0080].

-   Claim 25-28 were rejected generally under the same ground as the claim from which they previously depended (i.e., claim 20). Claims 25-28 have been amended to depend from claim 7. In addition, Applicant has amended claims 25-28 to ensure proper antecedent basis with features of claim 7, and to be adequately supported by the originally-filed application. Support for the amendments to claims 25-28 may be found in the originally-filed application at Figure 3, and paragraphs [0041] and [0042], and at Figure 13, and paragraph [0073] through [0074].

V.   Claim Rejection - 35 U.S.C. § 101

Claims 30 and 31 are rejected under 35 U.S.C. §101. Claims 30 and 31 have been cancelled, and therefore this rejection is now moot.

VI.   Claim Rejections - 35 U.S.C. § 102

Rejection of Claims 1, 2, 30, and 31 under Easton:

Claims 1, 2, 30, and 31 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,985,516 to Easton (herein "Easton"). Claims 2, 30, and 31 have been cancelled, and therefore this rejection is now moot with respect to those claims. Applicant has amended independent claim 1, and respectfully traverses the rejection.

Easton discloses a receiver unit 200 (FIG. 2) that includes a buffer 224, a data processor 230, and a controller 240 (FIG. 2; and col. 6, lines 21-43). Complex, digital baseband samples are stored in the buffer 224. Data processor 230 retrieves the samples from the buffer 224, processes the retrieved samples, and provides processed symbols to a buffer/de-interleaver 234 (col. 6, lines 52-55). Data processor 230 can be operated with a clock signal that may be asynchronous to, and faster than, the sample rate of the samples stored in buffer 224 (col. 8, lines 25-28). Data processor 230 can be used to instantiate and support multiple fingers of a rake receiver (col. 8, lines 34-37). Data processor 230 may include a correlator 522, a symbol demodulator and combiner 524, and an accumulator 526 (FIG. 5). The correlator 522 despreads the I and Q samples with a complex PN dispreading

sequence to provide despread samples (col. 12, lines 21-28). Symbol demodulator and combiner 524 performs demodulation and combining of demodulated symbols corresponding to various signal instances to generate recovered symbols that are stored to buffer/deinterleaver 234 (col. 12, lines 37-55). For signaling data processing, correlator 522 may provide the despread samples to accumulator 526, which accumulates the despread samples over a particular time period, and provides the recovered (e.g., pilot or power control) data to controller 240 (col. 13, lines 4-15).

Applicant's claim 1 includes at least the following features, which distinguish claim 1 from that which is disclosed by Easton:

"... serially determining a channel estimate for each of a plurality of different multi-paths to generate a plurality of channel estimates;

selecting, based on instantaneous powers of the plurality of channel estimates, a set of relevant multi-paths that includes a subset of the plurality of different multi-paths;

performing an iterative process to determine a symbol estimate that is stored in a second memory element . . . for each multi-path of the set of relevant multi-paths . . ."

Easton does not disclose each and every feature of Applicant's claim 1. More particularly, nowhere does Easton disclose selecting, based on instantaneous powers of the plurality of channel estimates, a set of relevant multi-paths, and performing the iterative process for each of the relevant multi-paths, as is claimed by Applicant.

Based on the amendments and the above remarks, Applicant believes that this rejection of claims 1, 2, 30, and 31 under 35 U.S.C. §102(e) has been overcome. Accordingly, Applicant respectfully requests that the Examiner reconsider the rejection in light of the amendments and remarks, withdraw the rejection, and allow claim 1.

Rejection of Claims 1 and 2 under Taniguchi:

Claims 1 and 2 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 7,035,318 to Taniguchi et al. (herein "Taniguchi"). Claim 2 has been cancelled, and therefore this rejection is now moot with respect to that claim. Applicant has amended independent claim 1, and respectfully traverses the rejection.

Taniguchi discloses a receiving unit for a CDMA system signal (Abstract). The receiving unit includes an input data buffer section 52 and a dispreading finger section 54 (FIG. 2 and 9). The dispreading finger section 54 includes a code generation section 60a, a multiplier 60b, an adder 60c, and a buffer section 61 (FIG. 9 and col. 10, lines 39-44). The code generation section 60a generates a dispreading code, and the multiplier 60b multiplies the dispreading code with data from the input data buffer 52 (col. 10, lines 45-53). The adder 60c adds the data from the multiplier 60b and data stored in the buffer section 61, and supplies the result to buffer section 61 (col. 10, lines 54-56).

Applicant's claim 1 includes at least the following features, which distinguish claim 1 from that which is disclosed by Taniguchi:

". . . serially determining a channel estimate for each of a plurality of different multi-paths to generate a plurality of channel estimates;

selecting, based on instantaneous powers of the plurality of channel estimates, a set of relevant multi-paths that includes a subset of the plurality of different multi-paths;

performing an iterative process to determine a symbol estimate that is stored in a second memory element . . . for each multi-path of the set of relevant multi-paths . . ."

Taniguchi does not disclose each and every feature of Applicant's claim 1. More particularly, nowhere does Taniguchi disclose selecting, based on instantaneous powers of the plurality of channel estimates, a set of relevant multi-paths, and performing the iterative process for each of the relevant multi-paths, as is claimed by Applicant.

Based on the amendments and the above remarks, Applicant believes that this rejection of claims 1 and 2 under 35 U.S.C. §102(e) has been overcome. Accordingly, Applicant respectfully requests that the Examiner reconsider the rejection in light of the amendments and remarks, withdraw the rejection, and allow claim 1.

VII.   Claim Rejections - 35 U.S.C. § 103

Rejection of Claim 5:

Claim 5 is rejected under 35 U.S.C. §103(a) as being unpatentable over Taniguchi, as applied to claim 1, in view of U.S. Patent Publication No. 2003/0235238 to Schlem et al. (herein "Schlem").   Applicant has amended independent claim 1, from which claim 5 depends, and respectfully traverses the rejection.

The Taniguchi reference was previously discussed. Schlem discloses a rake receiver that includes channel estimation units 54, which function to periodically calculate an estimate of the channel (FIG. 2; and paragraph [0056]).

As discussed previously in conjunction with the response to the rejection of claim 1 under 35 U.S.C. §102(e) based on Taniguchi, Taniguchi fails to disclose each and every feature of claim 1. Accordingly, Taniguchi fails to disclose each and every feature of claim 5.   Schlem fails to make up for the deficiencies in Taniguchi.   Accordingly, neither Taniguchi, Schlem, nor their combination disclose the features of Applicant's claim 5.

Based on the amendments and the above remarks, Applicant believes that the rejection of claim 5 under 35 U.S.C. §103(a) has been overcome. Accordingly, Applicant respectfully requests that the Examiner reconsider the rejection in light of the amendments and remarks, and withdraw the rejection.

Rejection of Claim 6:

Claim 6 is rejected under 35 U.S.C. §103(a) as being unpatentable over Easton or Taniguchi, as applied to claim 1, and further in view of U.S. Patent No. 6,748,010 to Butler et al. (herein "Butler").   Applicant has amended independent claim 1, from which claim 6 depends, and respectfully traverses the rejection.

The Easton and Taniguchi references were previously discussed. Butler discloses a paging method in which samples corresponding to received RF signals are stored in a sample buffer. A set of searches are performed o the samples, and if pilot signals are detected, additional demodulation is performed to detect paging messages. Applicant respectfully disagrees, for the record, that it would be obvious to one of ordinary skill in the art to tune or retune the receiver in Easton or Taniguchi based on the disclosures made in Butler.

Applicant may further explain this position in a response to any future office action that cites Butler.

As discussed previously in conjunction with the response to the rejections of claim 1 under 35 U.S.C. §102(e) based on Easton and Taniguchi, both Easton and Taniguchi fail to disclose each and every feature of claim 1. Accordingly, both Easton and Taniguchi fail to disclose each and every feature of claim 6. Butler fails to make up for the deficiencies in Easton and Taniguchi. Accordingly, neither Easton, Taniguchi, Butler, nor any combination of those references disclose the features of Applicant's claim 6.

Based on the amendments and the above remarks, Applicant believes that the rejection of claim 6 under 35 U.S.C. §103(a) has been overcome. Accordingly, Applicant respectfully requests that the Examiner reconsider the rejection in light of the amendments and remarks, and withdraw the rejection.

Rejection of Claims 7-10, 19-20, and 23-26:

Claims 7-10, 19-20, and 23-26 are rejected under 35 U.S.C. §103(a) as being unpatentable over Taniguchi in view of Schlem. Applicant has cancelled claims 8, 19-20, and 23-25, and therefore this rejection is now moot with respect to those claims. In addition, Applicant has amended independent claim 7, from which claim the remaining rejected claims (i.e., claims 9, 10 and 26) depend, and respectfully traverses the rejection. Support for the amendments to claim 7 may be found in the originally-filed application at least at Figure 10, and paragraphs [0064] through [0067]. No new matter has been added as a result of the amendments.

The Taniguchi and Schlem references were previously discussed.

Applicant's claims 7, 9, 10, and 26 include at least the following features, which distinguish these claims from that which is disclosed by Taniguchi, Schlem or their combination:

"... a processor, operatively coupled to the plurality of buffers, and adapted to access, from the plurality of buffers, a first block of the chip samples corresponding to a first symbol group, and to perform an iterative process of serially extracting, from the first block, a multi-path component for each of a plurality of multi-paths in order to produce a plurality of extracted multi-path components, to multiply the plurality of extracted multi-path components with a plurality of channel estimates, and to accumulate results into a symbol buffer,

wherein the apparatus is adapted to transition the processor into a sleep mode after the processor has completed the iterative process for the first block of chip samples, and to transition the processor into a processing mode when a second block of chip samples corresponding to a second symbol group is available to be processed."

Neither Taniguchi, Schlem nor their combination disclose each and every feature of Applicant's claims. More particularly, for example, neither Taniguchi, Schlem, nor their combination disclose an apparatus for demodulating a signal that is adapted to transition a processor to a sleep mode after performing an iterative process using a first block of chip samples corresponding to a first symbol group, and to transition the processor into a processing mode when a second block of chip samples corresponding to a second symbol group is available to be processed.

Based on the amendments and the above remarks, Applicant believes that the rejection of claims 7-10, 19-20, and 23-26 under 35 U.S.C. §103(a) has been overcome. Accordingly, Applicant respectfully requests that the Examiner reconsider the rejection in light of the amendments and remarks, and withdraw the rejection.

<u>Rejection of Claims 11, 29, 32, and 33:</u>

Claims 11, 29, 32, and 33 are rejected under 35 U.S.C. §103(a) as being unpatentable over Taniguchi in view of Schlem, as applied to claims 7 and 20, and further in view of U.S. Patent Publication No. 2001/0036195 to Garyantes et al. (herein "Garyantes"). Claims 11, 29, 32, and 33 have been cancelled, and therefore this rejection is now moot.

<u>Rejection of Claims 15 and 16:</u>

Claims 15 and 17 are rejected under 35 U.S.C. §103(a) as being unpatentable over Taniguchi in view of Schlem, as applied to claim 7, and further in view of Butler. Applicant has amended independent claim 7, from which the rejected claims depend, and respectfully traverses the rejection.

The Taniguchi, Schlem, and Butler references were previously discussed.

As discussed previously in conjunction with the response to the rejection of claim 7 under 35 U.S.C. §103(a) based on Taniguchi and Schlem, neither Taniguchi, Schlem, nor their combination disclose each and every feature of claim 7. Accordingly, neither Taniguchi, Schlem, nor their combination disclose each and every feature of claims 15 or 16. Butler fails to make up for the deficiencies in Taniguchi and Schlem. Accordingly, neither Taniguchi, Schlem, Butler, nor their combination disclose the features of Applicant's claims 15 or 16.

Based on the amendments and the above remarks, Applicant believes that the rejection of claims 15 and 16 under 35 U.S.C. §103(a) has been overcome. Accordingly, Applicant respectfully requests that the Examiner reconsider the rejection in light of the amendments and remarks, and withdraw the rejection.

<u>Rejection of Claims 17 and 28:</u>

Claims 17 and 28 are rejected under 35 U.S.C. §103(a) as being unpatentable over Taniguchi in view of Schlem, as applied to claims 7 and 20, and further in view of Easton. Applicant has amended independent claims 7 and 20, from which the rejected claims depend, and respectfully traverses the rejection.

The Taniguchi, Schlem, and Easton references were previously discussed.

As discussed previously in conjunction with the response to the rejection of claims 7 and 20 under 35 U.S.C. §103(a) based on Taniguchi and Schlem, neither Taniguchi, Schlem, nor their combination disclose each and every feature of claims 7 or 20. Accordingly, neither Taniguchi, Schlem, nor their combination disclose each and every feature of claims 17 or 28. Easton fails to make up for the deficiencies in Taniguchi and Schlem. Accordingly, neither Taniguchi, Schlem, Easton, nor their combination disclose the features of Applicant's claims 17 or 28.

Based on the amendments and the above remarks, Applicant believes that the rejection of claims 17 and 28 under 35 U.S.C. §103(a) has been overcome. Accordingly, Applicant respectfully requests that the Examiner reconsider the rejection in light of the amendments and remarks, and withdraw the rejection.

<u>Rejection of Claim 18:</u>

Claim 18 is rejected under 35 U.S.C. §103(a) as being unpatentable over Taniguchi in view of Schlem, as applied to claim 7, and further in view of U.S. Patent Publication No. 2003/0128678 to Subrahmanya et al. (herein "Subrahmanya"). Applicant has amended independent claim 7, from which the rejected claim depends, and respectfully traverses the rejection.

The Taniguchi and Schlem references were previously discussed. Subrahmanya discloses that the W-CDMA standard supports downlink data transmission from a base station via two antennas (i.e., transmit diversity) (paragraph [0006]).

As discussed previously in conjunction with the response to the rejection of claim 7 under 35 U.S.C. §103(a) based on Taniguchi and Schlem, neither Taniguchi, Schlem, nor their combination disclose each and every feature of claim 7. Accordingly, neither Taniguchi, Schlem, nor their combination disclose each and every feature of claim 18.

Subrahmanya fails to make up for the deficiencies in Taniguchi and Schlem. Accordingly, neither Taniguchi, Schlem, Subrahmanya, nor their combination disclose the features of Applicant's claim 18.

Based on the amendments and the above remarks, Applicant believes that the rejection of claim 18 under 35 U.S.C. §103(a) has been overcome. Accordingly, Applicant respectfully requests that the Examiner reconsider the rejection in light of the amendments and remarks, and withdraw the rejection.

Rejection of Claim 28:

Claim 28 is rejected under 35 U.S.C. §103(a) as being unpatentable over Taniguchi in view of Schlem, as applied to claim 20, and further in view of Subrahmanya and Easton. Applicant has amended independent claim 20, from which the rejected claim depends, and respectfully traverses the rejection.

The Taniguchi, Schlem, Subrahmanya, and Easton references were previously discussed.

As discussed previously in conjunction with the response to the rejection of claim 20 under 35 U.S.C. §103(a) based on Taniguchi and Schlem, neither Taniguchi, Schlem, nor their combination disclose each and every feature of claim 20. Accordingly, neither Taniguchi, Schlem, nor their combination disclose each and every feature of claim 28. Subrahmanya and Easton fail to make up for the deficiencies in Taniguchi and Schlem. Accordingly, neither Taniguchi, Schlem, Subrahmanya, Easton, nor their combination disclose the features of Applicant's claim 28.

Based on the amendments and the above remarks, Applicant believes that the rejection of claim 28 under 35 U.S.C. §103(a) has been overcome. Accordingly, Applicant respectfully requests that the Examiner reconsider the rejection in light of the amendments and remarks, and withdraw the rejection.

VIII. New Claims

New claims 34-39 are supported in the originally-filed application at least at paragraphs [0066] through [0068]. New claims 34 and 35 are distinguishable from the cited references for at least the reason that independent claim 1, from which they depend, is distinguishable from the cited references, as explained above. New claim 36 is distinguishable from the cited references for at least the reason that independent claim 7, from which it depends, is distinguishable from the cited references, as explained above. New claims 37-39 are distinguishable from the cited references in that none of the cited references disclose the following features of Applicant's claim 37 (from which claims 38 and 39 depend):

". . . when a set of the digital samples corresponding to a first symbol group is available, activating a processor to generate a first symbol estimate for the first symbol group, wherein generating the symbol estimate includes

serially determining a channel estimate for each of a plurality of different multi-paths to generate a plurality of channel estimates;

selecting, based on instantaneous powers of the plurality of channel estimates, a set of relevant multi-paths that includes a subset of the plurality of different multi-paths;

performing an iterative process to determine the first symbol estimate that is stored in a second memory element, wherein the iterative process includes, for each multi-path of the set of relevant multi-paths,

extracting a multi-path component for a particular multi-path,

multiplying the multi-path component with a channel estimate for the

particular multi-path to generate an intermediate symbol estimate, and

accumulating the intermediate symbol estimate into the first symbol estimate;

deactivating the processor when the iterative process is completed; and

when a set of the digital samples corresponding to a second symbol group is available, again activating the processor to generate a second symbol estimate for the second symbol group."

CONCLUSION

In view of the foregoing, it is believed that all claims now pending are in condition for allowance. A Notice of Allowance is earnestly solicited at the earliest possible date. If the Examiner believes that a telephone conference would be useful in moving the application forward to allowance, the Examiner is encouraged to contact the undersigned at (480) 385-5060. If necessary, the Commissioner is hereby authorized to charge payment or credit any overpayment to Deposit Account No. 50-2091 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17, particularly extension of time fees.

Respectfully submitted,

/SHERRY W. SCHUMM/

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Sherry W. Schumm
Reg. No. 39, 422

(480)385-5060